HAGSHAW ENERGY CLUSTER
WESTERN EXPANSION

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Hagshaw Energy Cluster – Western Expansion

Phase 1

Scoping Update

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1. Introduction

1.1 Purpose of this Scoping Update

1.1.1 This report is an update to the information that was provided in the Environmental Impact Assessment (EIA) Scoping Report that was submitted to the Scottish Government Energy Consents Unit (ECU) in September 2022 for the proposed Hagshaw Energy Cluster- Western Expansion project.

1.1.2 The 2022 Scoping Report outlined the proposals for the Hagshaw Energy Cluster- Western Expansion and proposed scope and methodology of any future environmental impact assessment in support of a *Section 36* application under the *Electricity Act 1989*.

1.1.3 Since the 2022 Scoping Report was submitted, there have been a number of changes to the proposed Hagshaw Energy Cluster- Western Expansion project and this Scoping Update has been prepared to provide consultees with information on these. This Scoping Update also provides consultees with an opportunity to review their original scoping opinions taking into consideration these changes and amend their previous comments on the proposed methodologies and scope of the EIA if they consider that this is required.

1.1.4 This Scoping Update should be read in conjunction with the 2022 Scoping Report and sets out:

- Key matters arising from scoping.
- Work undertaken since scoping.
- Main changes to the Hagshaw Energy Cluster- Western Expansion components and layout.
- Any changes to the baseline and proposed assessment methodologies as a result of the updated design.

1.2 EIA Parameters

1.2.1 As outlined within the 2022 Scoping Report, the structure of the EIA Report will follow the requirements of the EIA Regulations (Schedule 4) and other relevant good practice guidance and comprise five volumes.

1.2.2 The parameters of the EIA will be such that an appropriate level of assessment is undertaken for a given hub height and rotor diameter, within the envelope of a maximum tip height of the wind turbines. The locations of the various infrastructure components will further evolve in response to the ongoing community consultation and detailed assessment work, taking consideration of environmental effects, terrain, current land use, technical and health and safety issues. The parameters of the proposed development will be explicitly identified in the EIA Report. The final locations of the turbines and infrastructure components will be 'frozen' at an appropriate time in order to enable the EIA Report to describe fully the proposed development for which Section 36 and planning consent is sought.

1.2.3 The cumulative assessments will take into consideration operational and consented wind and solar developments, as well as those in planning, that are in the vicinity of the development site. The cumulative developments to be assessed will be set at an agreed point prior to submission of an application. We welcome any further information from stakeholders on additional proposed developments that should be considered.

1.2.4 At present, consent will be sought for an operational life of 40 years from the date of commissioning the wind turbines.

2. Response to the 2022 Scoping Report

2.1 Scoping Opinion

2.1.1 A formal Scoping Opinion was received from the Scottish Ministers in March 2023. It is the view of the Applicant that there were no significant issues raised by consultees which would give rise to a conclusion that the Hagshaw Energy Cluster- Western Expansion project (as previously scoped) could not be realised in full, with the exception of the responses from NatureScot (NS) and Royal Society for the Protection of Birds (RSPB) Scotland in relation to the potential impact of the project on the Muirkirk and North Lowther Uplands Special Protection Area (SPA) and the Muirkirk Uplands Special Site of Scientific Interest (SSSI).

2.1.2 Importantly, it is acknowledged that part of the site, as previously scoped, overlapped with the north-eastern extent of the Muirkirk and North Lowther Uplands SPA. This SPA covers a total area of approximately 26,832 ha within Dumfries and Galloway, East Ayrshire and South Lanarkshire. The SPA was designated some 20 years ago for its breeding and non-breeding hen harrier as well as breeding populations of short-eared owl, merlin, peregrine and golden plover. Part of the site also overlapped with commensurate area of the Muirkirk Uplands SSSI, designated for its breeding bird assemblage, as well as breeding and non-breeding hen harrier, breeding short-eared owl and upland habitats including blanket bog. Through its programme of site condition monitoring, NS have identified that the SPA in general is in unfavourable condition for most of its qualifying features, and a range of data conclude that it supports a fraction of the qualifying species for which it was designated. RSPB Scotland also recently prepared a Conservation Action Plan (CAP) which sets out a range of measures that would be required for the restoration of the SPA. This document includes analysis of the potential causes of the population declines in the SPA's qualifying species, including historical land use changes as well as current regional patterns affecting recruitment.

2.1.3 The 2022 Scoping Report proposed that the remainder of the site area which lies within the SPA and SSSI boundary be utilised for habitat restoration and management works, alongside a substantial new SPA and SSSI Recovery and Management Fund, targeted at supporting recovery of the wider SPA to favourable condition. The project, as previously scoped, therefore presented a significant opportunity for private investment in nature to support recovery of an otherwise failing SPA towards achieving favourable conservation status, and the delivery of a number of the aims and objectives of the CAP, helping key wildlife, delivering wider environmental benefits, contributing to renewable energy targets, and delivering a transformational level of investment in nearby communities.

2.1.4 Both NS and RSPB Scotland indicated in their 2022 Scoping responses that they were likely to object to the project, as previously scoped, as they considered there would likely be an adverse effect on the integrity of the SPA, notwithstanding the fact that the SPA in general is in unfavourable condition for most of its qualifying features, and that it supports a fraction of the qualifying species it once did. The concerns of NS and RSPB are considered to largely relate to the components of the project that lie within the SPA and SSSI boundary.

2.1.5 Conversely, the South Strathclyde Raptor Study Group (SSRSG) have written in support of the project, as previously scoped, as a result of the investment it can bring to the recovery of the SPA. Muirkirk Community Council and Muirkirk Enterprise Group have both also written in support of the project, as previously scoped, because of the level of investment it can deliver in the regeneration of Muirkirk (the closest community).

2.2 Further Consultation

Public Consultation

2.2.1 The Applicant is committed to undertaking meaningful consultation with the local community and is currently corresponding with the communities closest to the development to provide an update

on progress with the project. A first round of public consultation events was held in November 2022 to inform and consult with those communities closest to the development. Consultation events were held at the following locations:

- Muirkirk, 14 November 2022, 2pm – 7pm
- Sandford, 15 November 2022, 2pm – 7pm
- Lesmahagow, 16 November 2022, 2pm – 7pm
- Douglas, 17 November 2022, 2pm – 7pm
- Coalburn, 21 November 2022, 2pm – 7pm

2.2.2 The Applicant intends to hold a second round of public consultation events to inform local communities of the proposed changes to the development in March 2024. It is proposed that the public consultation events will take place in the following locations (exact dates and times to be confirmed):

- Muirkirk
- Sandford
- Douglas

2.2.3 Due to the changes proposed to the development, site boundary, and transport route it has been agreed with South Lanarkshire Council (SLC) that there is no longer a need to hold public events for Phase 1 of the project in Lesmahagow and Coalburn. Notwithstanding the above, both Lesmahagow and Coalburn Community Councils will be consulted on this Scoping Update Report and have the opportunity to provide comments on the proposed changes to the project.

2.2.4 The proposed venues and format of the public consultation events will be agreed with the Local Authorities in advance of them being advertised in local newspapers, online and with mail drops to the closest residents. The public consultation events will provide an opportunity for the local community to provide feedback on the changes to the project and help shape the final design of Phase 1 of the development.

2.2.5 The dedicated project website will house the latest information about the development and details of how comments can be submitted to the Applicant or how to set up a meeting or call/videocall with the project team to discuss any specific points in relation to the development.

Stakeholder Consultation

2.2.6 Taking into consideration comments made in the original scoping responses the Applicant undertook a design iteration exercise in February 2023 whereby the number of turbines proposed within the SPA/SSSI were reduced from 44 to 28 (36% decrease). In addition to reducing the footprint of turbines and associated infrastructure within the SPA/SSSI, turbines were re-located outside the Peatland ACTION restoration area in response to comments made by officers at the Scottish Environmental Protection Agency (SEPA). This reduced the overall land-take of the project within the SPA to 0.23% of the total SPA land area but kept the level of investment from the project in the recovery of the SPA/SSSI significant at £32 million.

2.2.7 Following receipt of the Scoping opinion and the subsequent February 2023 re-design the Applicant and its technical advisors have met/engaged with the following stakeholders to discuss the proposed changes to the development:

- NS, February 2023
- East Ayrshire Council (EAC), March 2023 and subsequent
- South Lanarkshire Council (SLC), March 2023 and subsequent
- SEPA, April 2023

- Energy Consents Unit, May 2023 and subsequent
- Historic Environment Scotland (HES), June 2023
- Aviation stakeholders, regular ongoing discussions
- SSRSG, regular ongoing discussions
- Landowners, regular ongoing discussions
- Community Councils.

2.2.8 A full list of organisations and interested stakeholders consulted as part of the scoping process is included in **Appendix 1**.

2.3 Project Phasing

2.3.1 Further consultation with NS on the February 2023 re-design (as noted above) did not alter the concerns raised by NS in their Scoping response about the elements of the proposed development located within the SPA and SSSI, and their view on the baseline for the Habitats Regulations Assessment and the requirements of the *Conservation (Natural Habitats, &c.) Regulations 1994 (as amended)*. Given the risk of these concerns delaying delivery of much needed additional renewable energy and community benefit from the proposed development, the decision has been taken by the Applicant to seek to progress the project (as originally scoped) in two separate phases.

Phase 1 – Dungavel & Netherwood (Wind, Solar & BESS)

2.3.2 Phase 1 will comprise the wind turbines within Area A and the solar, Battery and Energy Storage System (BESS) and substation within Area D only, which are all now outwith the SPA and SSSI. The site boundary for Phase 1 will include a stretch of the existing B743 public highway to allow cables to be laid in the road verge to connect the turbines in Area A to the substation in Area D. The proposed new site boundary for Phase 1 is shown outlined in red on **Figure 2.1**. Access to Phase 1, for abnormal loads, is currently proposed to be taken from J11 of the M74 through the eastern extent of the existing Hagshaw Energy Cluster to meet the A70 west of Glespin (exact route tbc), then following the A70 to Muirkirk before heading north along the B743 to the site (access Point B on **Figure 3.1**). **Figure 3.5** shows the currently proposed abnormal load route from J11 of the M74 which avoids any traffic from Phase 1 crossing the SPA/SSSI with the exception of the use of the existing B743 public road.

2.3.3 Since scoping the development in 2022, four turbines have been relocated from the margins of the SPA/SSSI to a new section of Area A in the northwest of Dungavel Forest to ensure that all turbines within Area A now lie outwith the SPA/SSSI. These four turbines within the new section of Area A are marked in a different colour on **Figure 2.1**.

2.3.4 Hagshaw Energy Cluster- Western Expansion, Phase 1 - Dungavel & Netherwood (hereafter referred to as the 'Proposed Development') therefore forms the basis of this Scoping Update Report and will form the subject of a standalone Section 36 application to be submitted to the ECU later in 2024.

Phase 2 – Netherwood, Tardoes & Lightshaw (Wind & BESS) plus Green Hydrogen

2.3.5 In parallel with progressing the application for Phase 1, discussions with stakeholders will continue on the proposal to bring forward a separate application for the remaining components of the Hagshaw Energy Cluster- Western Expansion project outlined in blue on **Figure 2.1** (as 'Phase 2'). The application for Phase 2 of the development is currently proposed to comprise turbines within Areas B (Tardoes & Lightshaw) and C (Netherwood), and the green hydrogen in Area E. Phase 2 also has the potential to include a separate BESS and substation compound in Area B on land at Lightshaw adjoining the A70 east of Muirkirk, outwith the SPA/SSSI.

2.3.6 It is currently proposed that an application for Phase 2 would be submitted once the potential impacts on, and benefits to, the SPA and SSSI are further considered by all stakeholders in the context of the requirements of the *Conservation (Natural Habitats, &c.) Regulations 1994 (as*

amended) and the baseline to be used for the Habitats Regulations Assessment. Access to Phase 2 for abnormal loads is currently proposed to be taken from J11 of the M74 through the existing Hagshaw Energy Cluster, directly onto the site.

3. The Proposed Development

3.1 Site Description

3.1.1 The Proposed Development (Phase 1) site is split into two main development areas, with the wind turbines located within the northern development area (Dungavel Forest), and the solar, BESS and substation located within the southern development area (Netherwood) - refer to **Figure 3.1**. The wind development area is located within the western part of Dungavel Forest, directly to the west and south of the operational Dungavel and Kype Muir Wind Farms, within South Lanarkshire. The solar, BESS and substation development area is located on the Netherwood landholding, approximately 1.4 km to the north of Muirkirk in East Ayrshire. The two development areas are connected by a road corridor along the B743.

3.1.2 Access to the two development areas is proposed to be taken from three existing entrances off the B743, as shown on **Figure 3.1**.

3.1.3 The wind development area extends to approximately 760 ha, comprising commercial coniferous plantation and existing forestry tracks. The solar, BESS and substation development area extends to approximately 205 ha and comprises rough grassland principally used for silage and grazing cattle and sheep, with woodland fringes.

3.1.4 The site comprises a series of summits within the wind development area, which include Dungavel Hill (458 m, Above Ordnance Datum (AOD)), Auchengilloch (462 m AOD), Brown Hill (313 m AOD) and Regal Hill (428 m AOD). The solar, BESS and substation development area is located on the south facing lower slopes of Middlefield Law (466 m AOD).

3.1.5 There are a number of watercourses that traverse the site. The wind development area is drained by the Bught Burn, Patrick Burn, and Powbrone Burn which flow in a south-westerly directly to meet with the Glangavel Water and into the Glengavel Reservoir, located outside the site boundary. The solar, BESS and substation development area is traversed by a number of smaller watercourses and the Black Burn, Harwood Burn, and Lamon Burn, which flow in a southerly direction to meet with the Greenock Water, located on the southern boundary of the site.

3.1.6 A small stand of woodland noted on the Ancient Woodland Inventory of semi-natural origin is located along the southern boundary of the site around Middlefield.

3.1.7 In terms of cultural heritage, there is one scheduled monument, Dungavel Hill cairn (SM2848), which lies within the north-west of the site boundary.

3.1.8 Three residential properties lie within the site boundary which are all in the ownership of the principal landowner partners for the Proposed Development:

- Linburn Farm, Muirkirk, Cumnock, KA18 3NL
- Middlefield Farm, Muirkirk, Cumnock, KA18 3NL
- Middlefield Cottage, Muirkirk, Cumnock, KA18 3NL

In Proximity to the Site

3.1.9 **Figure 3.1** shows environmental designations within 5 km of the Proposed Development site boundary.

3.1.10 The road corridor (B743) between the two development areas crosses the Muirkirk and North Lowther Uplands SPA designated for its breeding and non-breeding hen harrier as well as breeding bird populations and overlaps with the area of the Muirkirk Uplands SSSI, designated for its breeding bird assemblage and upland habitats including blanket bog.

3.1.11 The Blood Moss and Slot Burn SSSI is located to the west of the B743 road corridor, outside the site boundary. It is an area of around 162 ha designated for its fossil-bearing rocks (yielding fossil fish

and water scorpions) alongside the Slot Burn, and blanket bog. The Airds Moss Special Area of Conservation (SAC) is designated for its blanket bog habitat and located approximately 2.3 km to the south-west of the site boundary.

3.1.12 There are three further scheduled monuments within 5 km of the site all located to the south and south-west of the site boundary, alongside a number of scattered B-listed and C-listed structures. Two historic battlefield locations are also located approximately 3.6 km to the north-west of the site and relate to the Battle of Loudoun Hill and Battle of Drumclog.

3.1.13 There are a number of operational and consented wind farm developments, as well as those in planning, that are in the vicinity of the Proposed Development site. Those of relevance will be considered in the cumulative assessment, with the main neighbouring projects shown in **Figure 2.1**. Other operational and consented wind farms as well as those at the application stage, within 35 km of the Proposed Development, are illustrated and listed on **Figure 5.3** (see **Chapter 5**, Landscape and Visual, below).

3.2 Proposed Development Description

3.2.1 The Proposed Development is now planned to comprise approximately 487 MW of renewable energy generation and energy storage output capacity, consisting of approximately 187 MW wind energy, approximately 100 MW solar energy, and approximately 200 MW battery energy storage system.

3.2.2 The Applicant has a grid connection agreement to connect the project to the national grid in July 2028 (with potential to advance to July 2027), meaning that, importantly, the Proposed Development could be grid connected and contributing to climate change, energy security and biodiversity imperatives pre-2030.

3.2.3 The project is currently proposed to comprise of the following main components:

Wind Turbines

3.2.4 Approximately 26 stand-alone, three bladed horizontal axis, wind turbines. Indicative turbine locations are shown on **Figure 3.1** and noted in **Table B1** of **Appendix 2**. All 26 turbines lie within South Lanarkshire Council's administrative area. An indicative infrastructure layout is provided in **Figure 3.3**.

3.2.5 Although the final specification of the turbines is not known at this time, they are likely to be up to 230 m maximum tip height, each with a generating capacity of up to approximately 7.2 MW.

3.2.6 Infrastructure associated with the wind turbine component of the Proposed Development will include:

- turbine foundations;
- crane hardstandings;
- on-site access tracks between turbines and from the point of access to the turbines;
- temporary construction compound(s), laydown area(s), and concrete batching plant(s);
- underground cabling between the wind turbines, the electricity substation, and BESS compound;
- borrow pits for stone; and
- meteorological mast(s).

3.2.7 The site possesses a strong wind resource as evidenced by the number of operational and consented wind energy developments in the local area. Approximately 187 MW of installed capacity could result in over 595 GW hours[1] of energy per year produced by the wind turbines on site.

Solar Array

3.2.8 An area for solar photovoltaic (PV) development has been identified on the south facing slopes within the southern development area, on land outside the boundary of the Muirkirk and North Lowther Uplands SPA and Muirkirk Uplands SSSI. It is anticipated that the solar PV development will generate around 100 MW of renewable energy and comprise solar panel arrays each with heights up to 3 m (highest point of mounting frame). The solar development area is identified on **Figure 3.1** with an indicative layout provided in **Figure 3.4**.

3.2.9 Infrastructure associated with the solar component of the Proposed Development will include:

- Photovoltaic panels and mounting frames;
- access tracks;
- temporary construction compound(s) and laydown area(s);
- perimeter fencing (deer stock);
- CCTV cameras;
- inverters and transformers;
- underground cabling between the photovoltaic panels and the electricity substation and BESS compound.

Battery Energy Storage System and Substation

3.2.10 It is proposed that a c.200 MW battery energy storage system (BESS) is located adjacent to the Proposed Development substation location, which is currently proposed within the southern development area, to the west of the B743 at Linburn (as shown on **Figure 3.4**). This location is also adjacent to the proposed solar development and lies outwith the SPA/SSSI.

3.2.11 The BESS will comprise four steel-portal framed buildings (agricultural style sheds) approximately 60 m by 40 m each. The BESS buildings will be located alongside the on-site substation compound which will contain a control building and external electrical equipment. The compound shall be approximately 100 m by 70 m surrounded by a security fence up to 3 m in height. The control building shall be a single-storey building with rendered walls and a pitched-tiled roof, with dimensions of approximately 25 m by 15 m by up to 7 m in height. To facilitate construction of the on-site substation, BESS and solar development, a temporary construction compound of 50 m by 50 m is proposed. Located close to the on-site substation shall be the Transmission Network Operator (TNO) substation compound which shall be approximately 70 m by 50 m surrounded by a security fence up to 3 m in height. The TNO compound shall contain a control building and external electrical equipment. There is also a requirement for the TNO compound to have an associated temporary construction compound which would measure 100 m by 50 m. It is currently proposed that the TNO substation shall connect to the transmission network via twin overhead lines, which shall be the subject of a separate consent by the TNO.

Access

3.2.12 Access by abnormal loads to the Proposed Development site is currently proposed to be taken from Junction 11 of the M74 motorway, through the existing Hagshaw Cluster to join the A70 west of Glespin (exact route tbc), then following the A70 to Muirkirk, before turning north onto the B743 (as shown on **Figure 3.5**). For the longest components, the wind turbine blades, the journey from King George V Dock in Glasgow to the A70 via the above route will be made on a standard blade

[1] Based on site specific capacity factor and energy yield calculations

carrying trailer. It is currently proposed that blades would then be transferred to a blade lifter via a temporary laydown area on land to the north of the A70. The wind turbine blades would then make the remainder of the journey to site via the above route on the blade lifter to ensure all manoeuvres along that stretch of the route are viable. All wind turbine abnormal loads will enter the site at Dungavel Forest only (Point B on **Figure 3.5)**.

3.2.13 Component deliveries for the southern development area will come off the B743 at an amended entrance to Linburn Farm to access the solar, BESS and substation development area (Access Point C on to **Figure 3.5**).

3.2.14 It is proposed that lighter goods vehicles and personnel vehicles will also be able to access the Proposed Development site from the two existing entrances into Dungavel Forest on the B743 (Points A and B on **Figure 3.5)**, and an amended entrance to Linburn Farm (Point C on to **Figure 3.5**).

3.2.15 The Applicant is in the process of identifying suitable borrow pit search areas within the site and intends on including such areas within the application for consent. Should suitable borrow pit search areas not be identified within the site, the Applicant will need to make provision for the import of aggregate from a suitable off-site source(s) for construction purposes. It is however currently envisaged that the vast majority of stone required for construction will be won on site.

3.2.16 It is proposed that post-construction, operational accesses off the B743 at the existing entrances to Dungavel Forest (Points A and B on **Figure 3.5)** and the amended entrance to Linburn Farm (Point C on to **Figure 3.5**) will be retained to service the Proposed Development. Any occasional abnormal load requirements during the operational period (for activities such as blade swaps, if required) would continue to use the M74(J11)/A70/B743 access route which would also be used for decommissioning. See **Chapter 11** for more details.

3.3 Updated Proposed Development Programme

3.3.1 An updated indicative programme for the delivery of the Proposed Development from Scoping Update to Operation is shown below in **Graphic 3.1**.

Graphic 3.1 Indicative project programme

3.4 Key Benefits of the Proposed Development

- Community Investment Fund of c. £37.4 million (£0.936 m p.a. indexed) over 40 years[2];
  - Local Energy Discount Scheme option for closest communities;
  - Local training and employability programme;

[2] Based on a project including 187.2 MWs of wind generating capacity, a community benefit contribution of £5,000/MW of wind energy, and an operational life of 40 years.

- Strategic Investment Plan to maximise Community Wealth Building opportunity over 40 year period;

- Community Ownership opportunity;
- Habitat management and peatland restoration;
- Approximately 482 MWs of indigenous renewable energy generation to displace other higher carbon sources of power;
- Green electricity to supply around 192,150 homes; and
- Approximately 230,700 tonnes of $C0_2$ saved every year.

4. Planning and Policy Context Update

4.1 Introduction

4.1.1 This section focuses on changes in Policy which have been made since the submission of the 2022 Scoping Report.

4.2 National Planning Policy

National Planning Framework 4 (2023)

4.2.1 NPF4 forms part of the statutory development plan. Section 13 of the Planning (Scotland) Act 2019 amends Section 24 of the 1997 Act regarding the meaning of 'development plan'. Such that for the purposes of the 1997 Act, the development plan for an area is taken as consisting of the provisions of:

- The National Planning Framework; and
- Any Local Development Plan (LDP).

4.2.2 NPF4 introduces centralised development management policies which are to be applied Scotland wide, and also provides guidance to Planning Authorities with regard to the content and preparation of LDPs.

4.2.3 The Proposed Development would have national development status as per the policy provisions of NPF4.

4.2.4 In terms development management and the application of national level policies, NPF4 states that:

"*The policy sections are for use in the determination of planning applications. The policies should be read as a whole. Planning decisions must be made in accordance with the development plan, unless material considerations indicate otherwise. It is for the decision maker to determine what weight to attach to policies on a case-by-case basis. Where a policy states that development will be supported, it is in principle, and it is for the decision maker to take into account all other relevant policies*".

4.2.5 The most relevant policies in NPF4 will include the following:

- Policy 1: Tackling the Climate and Nature Crisis;
- Policy 3: Biodiversity;
- Policy 4: Natural Places;
- Policy 5: Soils;
- Policy 6: Forestry, Woodland and Trees;
- Policy 7: Historic Assets and Places;
- Policy 11: Energy;
- Policy 22: Flood Risk and Water Management; and
- Policy 33: Minerals.

4.3 Climate Change and Energy Policy

4.3.1 The burning of fossil fuels to produce electricity is a major contributor to climate change through the release of atmospheric carbon dioxide (CO_2) and other harmful gases known collectively as greenhouse gases.

4.3.2 The Proposed Development relates to the generation of electricity from renewable energy sources and comes as a direct response to national planning and energy policy objectives. The clear objectives of the UK and Scottish Governments will be summarised, in relation to encouraging increased deployment and application of renewable energy technologies, consistent with sustainable development policy principles and national and international obligations on climate change.

4.3.3 In recent years UK and Scottish Government policies have focussed increasingly on concerns about climate change. Each tier of Government has developed targets, policies and actions to achieve targets to deal with the climate crisis and generate more renewable energy and electricity.

4.3.4 The UK Government retains responsibility for the overall direction of energy policy, although some elements are devolved to the Scottish Government. The UK Government has published a series of policy documents setting out how targets can be achieved. Onshore wind generation, located in Scotland, is identified as an important technology to achieve these various goals.

4.3.5 The Scottish Government has published a number of policy documents and has set its own targets. The most relevant policy, legislative documents and more recent policy statements published by the Scottish Government include:

- The Scottish Energy Strategy (December 2017);
- The Scottish Government's declaration of a Climate Emergency (April 2019);
- The Scottish Climate Change Plan Update (2020);
- The Climate Change (Emissions Reduction Targets) (Scotland) Act 2019 and the legally binding net zero target for 2045 and interim targets for 2030 and 2040;
- The Scottish Government's 'Programme for Government' (2022);
- The Onshore Wind Policy Statement (December 2022); and
- The Draft Energy Strategy and Just Transition Plan (January 2023).

4.3.6 Further deployment of renewable energy generating technology will be required throughout the 2020s in order to meet targets. As a mature technology onshore wind, and associated solar, development has a continuing and important role to play, as confirmed by national planning and energy policy and most recently in NPF4 and in the new Onshore Wind Policy Statement.

4.3.7 Scotland's overarching statutory target is to achieve a 100% reduction in greenhouse gas emissions to net-zero by 2045, with interim targets of 75% by 2030 and 90% by 2040, now provided for in the Climate Change (Scotland) Act 2009 as amended by the Climate Change (Emissions Reductions Targets) (Scotland) Act 2019 ("2009 Act") which came into force in March 2020.

4.3.8 A large increase in the deployment of this renewable energy technology is supported through a number of UK level policy documents including the latest UK Energy White Paper (2020) and Net Zero Strategy (2021). Scottish Government policy commitments are also clear – most recently expressed in NPF4 and in the Onshore Wind Policy Statement which will be material to the energy and national planning policy positions to be considered for the determination of the application.

5. Landscape and Visual

5.1 Introduction

5.1.1 This section of the report focuses on the changes to the baseline and assessment methodology with regard to the proposed landscape and visual impact assessment (LVIA) as outlined in the 2022 Scoping Report.

5.1.2 The relevant legislation and guidance remain as noted in the 2022 Scoping Report, noting the policy changes within **Section 4**.

5.2 Baseline Description

National Landscape Character Types covering the Site

5.2.1 The Proposed Development covers two main landscape types. The northern development area, comprising the wind turbines, is located within the Plateau Moorlands – Glasgow & Clyde Valley Landscape Character Type (LCT 213). The southern development area, comprising the solar and BESS/substation compound, is located within the Plateau Moorland – Ayrshire Landscape Character Type (LCT 78).

5.2.2 Within the South Lanarkshire Landscape Capacity Study for Wind Energy (SLLCSWE) 2016, the northern development area, is located within the Rolling Moorland Landscape Character Type and within the Hagshaw/Dungavel (North of Douglas Water) primary landscape unit. The study identifies a medium landscape character and visual sensitivity to wind energy development and having a medium capacity for turbines of between 150 m and 250 m in height.

5.3 Proposed Scope of Survey and Assessment

Study Areas

5.3.1 In order to assist with defining the study area, a digital Zone of Theoretical Visibility (ZTV) model has been produced as a starting point to illustrate the geographical area within which views of the different components of the development on the site are theoretically possible. This was based on a 'bare-earth' scenario, whereby the screening effect of areas of existing vegetation or built features in the landscape are not taken into account. The ZTV was modelled to blade tip height using the currently proposed maximum turbine height of 230 m, a maximum height of 3 m for the solar development areas, and a maximum height of 7 m for the substation and energy storage compound and is presented at **Figure 5.1**.

Landscape Designations

5.3.2 The Proposed Development is not located within or adjacent to a nationally designated landscape. The Proposed Development borders an East Ayrshire Sensitive Landscape Area. Landscape designations in the vicinity of the site are illustrated at **Figure 5.2**.

Proposed LVIA Viewpoint Locations

5.3.3 It is proposed that the 15 locations set out in **Table 5.1** are included as viewpoints in the LVIA. There is one change to the proposed list of viewpoints when compared with the list which was included in the 2022 Scoping Report. Viewpoint 1 would no longer have any visibility of the proposed turbines and so has been relocated closer towards the proposed turbines.

Table 5.1 Proposed LVIA Viewpoints (refer to Figure 5.1)

Viewpoint Number	Location	OS Grid Reference
1	Drumclog	263992, 638834
2	Victory Park, Muirkirk	269388, 627320
3	River Ayr Way, Muirkirk	269859, 626671
4	Cairn Table	272410, 624235
5	A70, Nether Wellwood	264483, 625095
6	B743 (east of Nethershield))	258726, 626946
7	B705 (Auchlinleck)	255098, 622594
8	Loudoun Hill	260869, 637928
9	A71, bridge crossing Calder Water	266379, 641900
10	Strathaven War Memorial	270448, 644635
11	Minor road south-west of Lesmahagow	279097, 638710
12	Black Hill	283198, 643552
13	A70 Rigside	287708, 635192
14	Tinto Hill	295316, 634372
15	Auchensaugh hill	285330, 627198

5.3.1 Given the movement of turbines away from the settlement of Muirkirk and the reduction in the zone of theoretical visibility from within the settlement, it is no longer proposed to undertake a separate Townscape Visual Assessment of Muirkirk for Phase 1 (refer to **Figure 2.1**).

Assessment of Turbine Lighting

5.3.2 In light of the changes to the scheme, it is now proposed that the following night-time visualisations will be produced:

- VP 1 – Drumclog, and
- VP 9 – A71, bridge crossing Calder Water.

5.3.3 The viewpoints will be used to inform consideration of the potential visual effects on key visual receptors in individual properties, settlements, and users of the A71 and nearby 'B' Roads. The previously suggested VP at Victory Park in Muirkirk now has very limited visibility of the turbine hubs making it an unsuitable location for night-time visualisations. Hub visibility to the south / south-west of the turbines is mostly within upland areas or on hills which have typically very limited (if any) visitors during dark sky hours.

5.3.4 Photographic examples of existing aviation lighting in similar light conditions will be presented in a separate appendix as a 'control mechanism'.

5.3.5 The assessment will also consider the potential cumulative effects of wind turbine aviation lighting, with reference to other wind farms that are either operational, under construction, consented or the subject of a full planning application. Additionally, the assessment will also consider the scoping scheme at Bankend Rig III which is adjacent to the site of the Proposed Development.

5.3.6 The wind farms identified within **Table 5.2** are therefore the schemes on which the discussion of the cumulative landscape and visual impact effects will be primarily focussed, as illustrated on **Figure 5.3.**

Table 5.2 – Cumulative sites within 20 km

Site	Blade tip height of turbines	Number of turbines
Operational / Under Construction		
Andershaw	125 m	14
Auchrobert	132 m	12
Bankend Rig	76 m	11
Birkhill (Harbro)	99.5 m	2
Blantyre Muir	115 m	3
Blantyre Muir Extension	115 m	3
Calder Water	145 m	13
Cumberhead Wind Farm	149.9 m	12
Cumberhead West	200 m	21
Dalquhandy	149.9 m	10
Douglas West	149.9 m	13
Dungavel	101.2 and 121.2 m	14
Galawhistle	121.2 m and 110.2 m	22 (4 and 18)
Hagshaw Hill Extension	80 m	20
Nutberry	125 m	6
Hare Hill	63.5 m	20
Hare Hill Extension	70 m, 81 m and 91 m	35
Hazelside Farm	74 m	1 operational, 1 to be constructed
High Waterhead Farm	67 m	1
JJ Farm Turbine	102 m	1
Kennoxhead	180 m	13
Kype Muir	132 m	26
Kype Muir Extension (Variation Application)	156 m, 176 m, 200 m and 220 m	15 (4, 3, 4 and 4)
Ladehead Farm	74 m	3
Letham Farm	51 m	1
Lochhead	100 m	5
Low Whiteside Farm	54 m	1
Middle Muir	136 m and 152 m	15 (8 and 7)
North Brackenridge	76 m	1
North Kyle	149.9 m	54
Nutberry	125 m	6
West Browncastle	129.9 m	12
Whitelee	110 m	140
Whitelee Phase 1 and 2 Ext.	140 m and 110 m	75 (69 and 6)
Yonderton Farm	51 m	1

Site	Blade tip height of turbines	Number of turbines
Consented		
Bankend Rig II	126.5 m (Resubmission 200 – 250 m)	3
Broken Cross Wind Farm	149.9 m	10
Broken Cross Small Wind Cluster	55.7 m	2
Douglas West Extension	200 m	13
Enoch Hill	130 m	16
Glenmuckloch	133.5 m	8
Greenburn	149.9m	16
Hagshaw Hill Repowering	200 m	14
Hare Craig	Up to 230 m	8
Kennoxhead Extension	180 m	8
Kennoxhead II Extension (Penbreck)	7 at 220 m and 1 at 200 m	8 (NB. application to increase tip height of 6 of the consented turbines)
Lethans	176 m, 200 m and 220 m	22 (7, 10, and 5)
Mill Rig	250 m	6
Muirhouse Farm	51 m	1
M74 Eco-Park	98.2 m	2
Overhill	149.9 m	10
South Priorhill Farm	130 m	1
West Dykes	150 m	1
In Planning		
Boddinglee	230 and 250 m	37 (16 and 21)
East Merkland	150 m	3
The Drum	220 m	8
Hallsburn	149.9 m	3
Lethans Extension	251 m and 235 m	10 (7 and 3)
Low DrumClog	180 m	3
South Brownhill Farm	180 m	3
Pre-Planning		
Bankend Rig III	250 m	11
Glentaggart	250 m	7
Hawkwood Hill	250 m	5
M74 West	200 m	24
West Andershaw	250 m	11

5.4 Scope

Table 5.3 – Receptors or Impacts Scoped In or Out of assessment

Assessment	Scoped In/ Out	Comment
Designated sites	✓	
Visual	✓	15 viewpoints will be used as the basis for determining the effects on visual receptors within the Study Area. Associated project infrastructure will be shown in photomontages for viewpoints within 5 km
RVAA	✓	Properties located within 2 km of all proposed turbines.
Turbine lighting	✓ x	Visual receptors (2 Viewpoints selected) Landscape character
Cumulative	✓	20 km study area Scope out turbines under 50 m within 10 km of the site, and under 80 m over 10 km distance from the site

6. Ecology and Nature Conservation

6.1 Introduction

6.1.1 This section of the report focuses on the changes to the baseline and assessment methodology with regard to the proposed non-avian Ecological Impact Assessment (EcIA) as outlined in the 2022 Scoping Report.

6.1.2 The relevant legislation and guidance remain as noted in the 2022 Scoping Report, noting the policy changes within **Section 4**.

6.2 Baseline Description

Habitats

6.2.1 The site comprises of two main areas totalling approximately 979.3 ha. These comprise principally of commercial coniferous plantation within the northern development area (c.760 ha) proposed for wind energy, and upland acid grassland, areas of rough grazing and inbye land in the southern development area proposed for the solar, substation and BESS compounds (c.205 ha) (**Figure 6.1**).

Nature Conservation Designations

6.2.2 The Proposed Development areas (see **Figure 3.1**) have been designed to avoid overlap with the surrounding designated sites which include the Muirkirk and North Lowther Uplands SPA, the Muirkirk Uplands SSSI, and the Blood Moss and Slot Burn SSSI. Other statutory nature conservation designations are also present within 5 km of the site (see **Figure 3.2**). All areas designated for their ecological interests are listed in **Table 6.1**, below.

Table 6.1 – Statutory nature conservation designations with non-avian ecological interests

Name	Distance from site	Size	Ecological Features	Condition (Date of Assessment)
Muirkirk Uplands SSSI	Site boundary crosses desigation along the B743	19,154 ha	Blanket bog	Unfavourable No change (October 2005)
			Upland assemblage – upland habitat	Favourable Maintained (October 2005)
Blood Moss and Slot Burn SSSI	Adjacent to site	162.49 ha	Blanket bog	Unfavourable No change (August 2014)
Airds Moss Conservation SAC	2.3 km southwest	1,360.22 ha	Blanket bog	Unfavourable No change (August 2016)
North Lowther Uplands SSSI	9.8 km south	7,833.3 ha	Upland assemblage – upland habitat	Unfavourable Recovering (May 2015)

Field Surveys

6.2.3 The following surveys have been undertaken or are underway:

- **National Vegetation Classification (NVC):** Historical National Vegetation Classification (NVC) data available from Scotland's environment web[3] covers much of the wider site, principally the previous site area within the SPA. Therefore, Extended NVC surveys were undertaken in 2022 and additional surveys within Dungavel Forest in summer 2023. The vegetation mapping

[3] https://www.environment.gov.scot/

was completed to the standard NVC methods in line with Rodwell (2006) with plant communities identified from representative quadrat samples with reference to the standard descriptions and constancy tables in Rodwell (1991 *et seq.*). Areas / polygons containing conifer plantation or agricultural grasslands in the survey area were mapped to the standard Joint Nature Conservation Committee (JNCC) *Phase 1 methodology* (JNCC, 2010). Target notes have also been produced to describe features with the potential to support protected or otherwise notable species that required further survey or consideration in relation to the Proposed Development. Where there is overlap with Historical NVC data, areas were ground truthed and vegetation boundaries and/or community types updated, as appropriate.

- **Bat surveys**: The work has been undertaken in accordance with the NatureScot *et al* (2021) guidance. A bat desk study has been undertaken to collate any relevant bat information for an area extending to 10 km from the site boundary. An assessment of likely species assemblages will be undertaken based on the location of the site and known species ranges, with particular attention paid to edge-of-range species.

  Areas that may provide suitable foraging or commuting areas have been identified from aerial photography and used to inform the activity surveys which were completed through 2022. The emphasis of the NatureScot *et al* (2021) guidance is on a robust approach to static monitoring, using detectors deployed across the survey area. **Figure 6.2** provides the locations of static detectors (n=17) which were a mixture of full spectrum and zero crossing recorders. Surveys were completed within appropriate weather conditions for bat activity (ideally above 8°C at dusk), low wind speeds and no or very light rain. Static detectors were set to commence monitoring half an hour before sunset and finish half an hour after sunrise to ensure all bat activity was captured. The recommended minimum level of survey was followed with static detectors deployed for a period of at least 10 nights in each of the seasons (Spring – April/May; Summer – June/July, and Autumn – August/September) backed up by further days as weather dictated. In line with relevant guidance survey effort focused on proposed turbine locations and areas of habitat likely to be used by bat species.

  A site walkover survey was further undertaken in September 2023 across the survey area (site and a 250 m buffer) with the aim of identifying key areas or structures that may support roosting bats, e.g. buildings, bridges or trees, and require subsequent investigation. The results of these surveys have been taken into consideration during the design iteration process for the Proposed Development layout.

- **Protected mammal surveys**: Surveys investigating for signs of protected mammals, such as otter, water vole, badger, pine marten and red squirrel, were completed in 2022 and 2023 in cognisance of standard methods (e.g., Chanin, 2003; Strachan *et al*., 2011; Scottish Badgers, 2018; O'Mahony *et al*., & 2006 Vincent Wildlife Trust, 2017; Gurnell *et al*., 2009). Surveys involved searching for field evidence, such as feeding signs, latrines and individual droppings, burrows, nests, footprints and obvious runways in vegetation and sightings of the animals themselves. **Figure 6.3** provides the survey areas used for these surveys.

- **Fisheries surveys**: A walkover survey of fish habitats to assess the productive potential of streams around proposed turbines, solar panel arrays and infrastructure, has been completed (2022). An electrofishing survey (2022) to determine fish species present and their distribution within and around the Proposed Development was completed along Self Grain and Powbrone Burn; survey locations are provided in **Figure 6.3**. The habitat survey was based on Environment Agency methods (Summers *et al*., 1996; Hendry & Cragg-Hine, 1997). For the electrofishing, surveys, the majority of survey locations were semi-quantitatively assessed according to the Scottish Fisheries Coordination Centre protocol (SFCC, 2014). Four sites were fished fully quantitatively in order to provide a measure of survey efficiency. Due to their commercial and conservation value, the surveys focused largely on salmonid species, but assessments of lamprey habitats and the presence of lamprey larvae were included.

- **Amphibian Surveys**: Habitat Suitability Index (HSI) (Oldham *et al*., 2000) assessments were carried out to assess the habitat quality and quantity of any waterbody within 500 m of any Proposed Development infrastructure. The HSI incorporates ten suitability indices, all of which are known to affect the species. The suitability indices are derived from field scores, some of which are categorical and some numerical. Surveys completed in 2022 identified only a single pond within the Amphibian Survey buffer; HSI results from these surveys recorded an assessment of low suitability and so no further surveys with regards to these species are deemed necessary.

6.3 Mitigation

6.3.1 Detailed proposals will also be outlined for habitat management to be implemented within the Proposed Development site itself, and on land adjoining the solar area, during the 40 year operational phase of the Proposed Development. This will support the restructuring of the forestry plantation in the northern area of the development, including forest to bog restoration where appropriate. Additional management measures will similarly be implemented across the southern area of the proposed solar development to increase the value of the habitats present and the opportunities afforded to protected species. Indicative areas being considered for habitat management within the site and wider landholding are shown on **Figure 6.4**.

6.3.2 Any peatland condition and restoration feasibility assessment within the adjoining SPA will no longer be included within the application for Phase 1 as a result of the change in site boundary; this suite of proposed restoration works within the SPA will continue to be explored with stakeholders as part of dialogue about Phase 2 (refer to **Figure 2.1** and **Chapter 2**).

6.4 Scope

Table 6.2 – Receptors or Impacts Scoped In or Out of assessment

Receptor	Construction	Operation	Potential Impact
Designated Sites			
Blood Moss and Slot Burn SSSI	✓	✓	Loss / degradation / drying of habitats
Muirkirk Uplands SSSI	✓	✓	Loss / degradation / drying of habitats
Airds Moss SAC	X	X	No impact due to distance
Coalburn Moss SAC	X	X	No impact due to distance
Coalburn Moss SSSI	X	X	No impact due to distance
North Lowther Uplands SSSI	X	X	No impact due to distance
Miller's Wood SSSI	X	X	No impact due to distance
Ecological Feature			
Terrestrial and Aquatic Habitats	✓	✓	Habitat loss beneath development footprint and indirect effects from pollution events
Bats	✓	✓	Collision risk and habitat loss / fragmentation
Pine Marten	✓	✓	Displacement and habitat loss
Badger	✓	✓	Displacement and habitat loss
Otter	✓	✓	Displacement and habitat loss
Water vole	✓	✓	Displacement and habitat loss
Fish and amphibians	✓	✓	Pollution / spills etc / Displacement and habitat loss

7. Ornithology

7.1 Introduction

7.1.1 This section of the report focuses on the changes to the baseline and assessment methodology with regard to the potentially significant effects on bird interests, specifically Important Ornithological Features (IOFs) as outlined in the 2022 Scoping Report.

7.1.2 The relevant legislation and guidance remain as noted in the 2022 Scoping Report, noting the policy changes within **Section 4**.

7.2 Baseline

Habitats

7.2.1 The northern development area of the Proposed Development is dominated by plantation conifer whilst the southern development area comprises habitats dominated by acid grassland and areas of inbye.

7.2.2 Both northern and southern development areas are drained by a number of small burns to the Glengavel Water and Greenock Water both flowing north to south from the development areas. National Vegetation Classification (NVC) and habitat data for the site and wider area is provided within **Figure 6.1**.

7.2.3 The site's altitude is lowest along the southern boundary of the site, where it borders the Greenock Water, rising to 457 m Above Ordnance Datum (AOD) at Dungavel Hill within the northern development area.

Nature Conservation Designations

7.2.4 The Proposed Development has been designed to avoid designated sites; both the northern and southern development areas of the Proposed Development lie adjacent to, but outwith, the Muirkirk and North Lowther Uplands Special Protection Area (SPA) and the Muirkirk Uplands Site of Special Scientific Interest (SSSI) (see **Figure 3.2**). The Proposed Development site area is now akin to neighbouring consented developments such as Cumberhead West and Hare Criag Wind Farms in terms of its proximity to the SPA and SSSI. A stretch of the existing B743 public road which crosses the SPA and SSSI has been included in the site boundary to allow for cables to be laid in the existing road corridor to connect the wind turbines in the north with the substation in the south.

7.2.5 The Muirkirk and North Lowther Uplands Special Protection Area (SPA) is designated to protect breeding and non-breeding hen harrier and breeding short-eared owl, merlin, peregrine and golden plover, along with part of the underlying area of the Muirkirk Uplands Site of Special Scientific Interest (SSSI), designated for its breeding bird assemblage, as well as breeding and non-breeding hen harrier and breeding short-eared owl, blanket bog and upland habitat assemblage.

7.2.6 The statutory nature conservation designations with ornithological features present within 20 km of the site are listed in **Table 7.1**.

Table 7.1 – Nature conservation designations with ornithological interests

Name	Distance from site	Size	Ornithological Features	Condition (Date of Assessment)
Muirkirk and North Lowther Uplands SPA	Borders the Proposed Development areas	26,832.47 ha	Hen harrier (*Circus cyaneus*), non-breeding	Unfavourable Declining (December 2004)
			Hen harrier, breeding	Unfavourable Declining (July 2008)

Name	Distance from site	Size	Ornithological Features	Condition (Date of Assessment)
			Short-eared owl (*Asio flammeus*), breeding	Favourable Maintained (July 1998 – has not been re-assessed since before designation)
			Merlin (*Falco columbarius*), breeding	Unfavourable No Change (July 2009)
			Peregrine (*Falco peregrinus*), breeding	Unfavourable No Change (August 2004)
			Golden plover (*Pluvialis apricaria*), breeding	Unfavourable Declining (June 2015)
Muirkirk Uplands SSSI	Borders the Proposed Development areas	19,154ha	Breeding bird assemblage	Favourable Maintained (August 2008)
			Hen harrier, breeding	Favourable Maintained (July 2008)
			Hen harrier, non-breeding	Unfavourable Declining (December 2004)
			Short-eared owl, breeding	Favourable Maintained (August 2002)
North Lowther Uplands SSSI	8.7 km south	7,833.3 ha	Breeding bird assemblage	Unfavourable No change (May 2015)
			Hen harrier, breeding	Unfavourable No Change (July 2008)

7.2.7 The condition of the SPA is classified by NatureScot as being unfavourable for each of the qualifying species, with the exception of short-eared owl which has not been assessed since 1998 as noted above. Survey and desk study data spanning almost two decades show that the baseline condition of the SPA, in terms of the breeding populations of qualifying species (and non-breeding in the case of hen harrier) has declined markedly since designation 20+ years ago. Evidence demonstrates that the number of breeding pairs of qualifying raptor species within the SPA, and its north-eastern section in particular, has dropped significantly since the year of designation.

7.2.8 According to data collected by the South Strathclyde Raptor Study Group, and further informed by desk study reviews of survey results from wind farm and other developments, hen harrier has not bred within the adjoining part of the SPA, or within 2 km of the site boundary, for over 10 years.

7.2.9 As the Proposed Development is located adjacent to the Muirkirk and North Lowther Uplands SPA, it will need to undergo a Habitats Regulations Assessment (HRA) in line with the Habitats Directive, as transposed into domestic legislation by the Conservation (Natural Habitats, &c.) Regulations 1994 (as amended in Scotland) and the Conservation of Habitats and Species Regulations 2017, as they apply to applications under the Electricity Act 1989.

7.3 Consultation

7.3.1 The Applicant met with both NatureScot and RSPB during 2021 to introduce the Proposed Development and the strategic opportunities of the project. NatureScot were then consulted on the proposed ornithology survey methodology and timings of ornithological surveys at the site in April 2022. The consultation response received in May 2022 outlined a broad approval from NatureScot in terms of the scope, timing and number of surveys. NatureScot was consulted again as part of the scoping exercise in September 2022 and a consultation response to the 2022 Scoping Report was received in November 2022.

7.3.2 The Applicant team met with NatureScot in an in person meeting in February 2023 to discuss in the detail provided within the Scoping response and possible amendments to the Proposed

Development layout to remove concerns raised. This included the reduction of turbines within the SPA/SSSI area, reducing the land take of the project within the SPA to 0.23% but retaining significant investment in the SPA at c.£32m. Following the meeting a decision was made to phase the application of the Proposed Development to allow for further discussions around the potential effects on the SPA and SSSI, as noted in **Section 2** above.

7.3.3 These responses and discussions have been considered in the design of the current Proposed Development, notably the phasing of the project, and all surveys outlined below took cognisance of the NatureScot response.

7.4 Proposed Scope of Survey and Assessment

7.4.1 The ornithological impact assessment, consideration of Likely Significant Effects and the Habitats Regulations Appraisal of the effects of the Proposed Development on the integrity of the Muirkirk and North Lowther Uplands SPA will be based on the robust contemporary ornithological baseline comprising desk study evidence combined with at least two years of ornithological surveys (from 2021 to 2024 across the site), completed in accordance with relevant NatureScot and other guidance[4] [5]. The evidence base used will include data from long-term raptor monitoring data carried out by the South Strathclyde Raptor Study Group.

Field Studies

7.4.2 Site surveys began in April 2021 and will continue through to March 2024. The following surveys were undertaken in line with the recommended guidance, in particular that issued by NatureScot (SNH, 2017) and the proposed methodologies approved by NatureScot in their initial consultation response (May 2022). Study areas for each of the surveys are shown in **Figures 7.1** and **7.2**.

Vantage Point (VP) surveys

7.4.3 Vantage Point (VP) surveys which have been completed include the 2021 to 2023 breeding seasons and the 2021-22, 2022-23, and 2023-2024 non-breeding seasons. **Table 7.2** outlines the survey periods undertaken at each VP.

Table 7.2 – Vantage Point Details

Vantage Point (VP)	Breeding Bird Season	Non-Breeding Bird Season	Total Number of Hours
VP1	2021 and 2022	2021-22 and 2022-23	144
VP2	2021 and 2022	2021-22 and 2022-23	144
VP3	2021 and 2022	2021-22 and 2022-23	144
VP4	2021 and 2022	2021-22 and 2022-23	144
VP5	2021 and 2022	2021-22 and 2022-23	144
VP6	2021 and 2022	2021-22 and 2022-23	144
VP7	2021 and 2022	2021-22 and 2022-23	144
VP8	2021 and 2022	2021-22 and 2022-23	144
VP9	2022 and 2023	2022-23 and 2023-24	144
VP10	2022 and 2023	2022-23 and 2023-24	144
VP11	2022 and 2023	2022-23 and 2023-24	144

[4] SNH (2017). Recommended bird survey methods to Inform Impact Assessment of Onshore Wind Farms, Version 2. Scottish Natural Heritage

[5] European Commission (2020) Guidance Document on Wind Energy Developments and EU Nature Legislation Brussels, 18.11.2020 C(2020) 7730 Final, Section 3.3

Vantage Point (VP)	Breeding Bird Season	Non-Breeding Bird Season	Total Number of Hours
VP12	2023	2023-24	72

7.4.4 The surveys covered a much wider area for the 2022 Scoping Report layout which has since been reduced to the Proposed Development (Phase 1, refer to **Figure 2.1**) considered for this Scoping Update. Initially eight VPs were used to cover the wider site boundary which was increased to eleven in April 2022 to include forestry to the north-west of the site with a twelfth VP added in April 2023 (see **Figure 7.3**).

7.4.5 Winter VP surveys between September 2022 and March 2023 comprised a minimum of three dawn and three dusk surveys at each VP with dusk surveys finishing 30 minutes after sunset in order to identify any roosting hen harrier within the viewsheds. All surveys were completed by experienced and competent ornithologists including members of the SSRSG.

7.4.6 These surveys aimed to identify the presence of species listed on the Birds Directive Annex 1, Wildlife and Countryside Act Schedule 1 or other notable species actively using the site and wider area and involved recording flight heights and mapping flight lines.

7.4.7 As of February 2024, a total of 17 target species had been recorded across all 12 VPs with a total of twelve recorded from VPs 9-12 which in-combination cover the 26 turbine northern development area. Of the five Muirkirk and North Lowther Uplands SPA qualifying species three have been recorded to date from VPs 9-12, with two registrations of peregrine one of hen harrier and three registrations of golden plover and these results are considered to indicate a low usage of the site by the SPA species.

7.4.8 The most frequently recorded target species to date from VPs 9-12 is pink-footed goose (16 registrations) with the only other three species with more than a single registration being red kite (4), goshawk (4) and curlew (7). A further five species all recorded once are common sandpiper, greylag goose, osprey, whooper swan and woodcock.

Breeding raptor surveys

7.4.9 Surveys for raptors (including barn owl) were undertaken by SSRSG with cognisance of the methods described in Hardey *et al*. (2013) with four surveys undertaken each year in 2021, 2022 and 2023. throughout April, May, June and July.

7.4.10 The breeding raptor survey in 2021 covered the site boundary at the time, the 2022 survey included the site boundary for the 2022 Scoping Report layout plus a 2 km survey buffer which was broadly replicated in 2023, although modified slightly to reflect amendments to the site boundary (notably a small additional area in the south). The three survey areas are shown in **Figure 7.1.**

7.4.11 To date the results of the raptor surveys have not identified the presence of any of the Muirkirk and North Lowther Uplands SPA qualifying raptor species or other Schedule1 species confirmed breeding within the site or 2 km buffer. A possible goshawk breeding attempt was recorded in Dungavel Forest in 2021 but subsequent surveys did not confirm a breeding attempt in this location. A single record of breeding peregrine was confirmed within the wider survey area in each of the three years (outside the SPA boundary) and a red kite breeding attempt was recorded in the wider survey area in 2022 and 2023. The peregrine breeding locations are over 5 km and 2 km from the northern and southern development areas and the red kite breeding attempt is over 6 km and 3 km respectively from the northern and southern development areas.

Breeding bird surveys

7.4.12 Breeding bird surveys, including the 2021 and 2022 breeding seasons followed a modified Brown and Shepherd (1993) survey method, designed for moorland/upland habitats, and involved four visits between mid-April to July, with a minimum of two weeks between survey visits, as per SNH (2017). The 2021 survey prioritised all areas within 500 m of the Proposed Development as per the turbine layout in 2021 and is shown with a blue dashed line in **Figure 7.1**. The 2022 survey area

covered the full site boundary as per the 2022 layout plus a 500 m survey buffer where access was permitted. The 2022 survey area is shown in purple hatch on **Figure 7.1**. A walked transect was followed, visiting all the areas of suitable habitat within the site boundary and aiming to survey birds within 100 m of all parts of the study area. As per the NatureScot guidance the breeding bird survey in 2021 and 2022 did not cover areas of plantation forestry.

7.4.13 A third year of breeding bird surveys were completed in 2023 covering the northern and southern development areas of the Proposed Development, and accessible areas of the 500 m survey buffer (shown in yellow in **Figure 7.1**). The 2023 breeding bird survey followed a Brown and Shepherd (1993) survey method in open areas of both of the northern and southern development areas with surveyors, in addition, walking transects through all accessible rides, forest edges and open areas within the plantation woodland of the northern development area.

7.4.14 The full breeding bird survey identified five breeding species of waders (common sandpiper, curlew, lapwing, oystercatcher and snipe) the majority of which were in the open moorland areas of the 2022 site boundary. A small number of curlew, snipe, lapwing and oystercatcher territories were recorded in grassland habitats within the southern development area. In the majority of the open moorland areas of the Proposed Development only two species (meadow pipit and skylark) were commonly recorded, a typical farmland, lowland and woodland assemblage were recorded in the remainder of the Proposed Development. The 2023 survey of the northern development area and southern development area identified Schedule 1 species crossbill as well as a number of BoCC Red and Amber list species typical of these habitats.

Wintering birds survey

7.4.15 The wintering bird survey comprised a combination of walkover and targeted "mini" VP surveys and were completed between October 2022 and March 2023 in order to identify any winter roosting and/or foraging target species of raptor. The walkover portion of the survey covered open areas of the site within 500 m of site infrastructure (2022 Scoping Report layout). The second section of the survey comprised dusk VP surveys from targeted locations and aimed to identify roosting hen harrier within areas of suitable habitat. The dusk hen harrier roost watches were repeated for the 2023 – 2024 winter season and are ongoing, due to finish March 2024. The winter survey comprised six survey visits spread throughout the winter season. **Figure 7.2** provides an overview of the survey areas.

7.4.16 The VP section of the wintering bird survey comprised two-hour duration dusk surveys that aimed to finish 30 minutes after sunset, depending on the date of survey (as per Gilbert *et al*., 2012). Each mini-VP allowed for views into areas located outside the viewsheds of the standard 11 VPs, and targeted habitat that is considered to be suitable for roosting hen harrier (i.e. rank grassland, deep heather and marshy grassland) that are within 2 km of the site infrastructure. The second winter season VP surveys were timed to capture hen harrier flights around any potential roost sites. The standard VPs provided good coverage to survey for potential roosting hen harrier within the viewshed areas. The wintering bird survey mini-VPs were used to cover any areas of suitable roosting habitat outside the viewsheds of the standard VPs within 2 km of proposed infrastructure. The winter walkover survey method followed those recommended by Gilbert *et al.* (2012), as noted.

7.4.17 The results showed low levels of activity across the survey area and no confirmed roosts, a single hen harrier was recorded flying south-west out of the wider site closer to dusk.

Black grouse surveys

7.4.18 Black grouse surveys were completed in suitable habitat between March and May 2022. Surveys were undertaken according to the method as detailed in Gilbert *et al.* (2011) as well as SNH (2017).

7.4.19 No evidence of black grouse leks were recorded during surveys.

Key Sensitivities

7.4.20 On the basis of the surveys undertaken at the site to date, hen harrier, peregrine and golden plover are most likely to be considered in the EIA Report as Important Ornithological Features (IOFs, see

below). Additional target species may be included depending on collision risk modelling results (which will be undertaken post design freeze).

7.4.21 In addition, there is likely connectivity between the scheme and Muirkirk and North Lowther Uplands SPA and consequently any effects upon site integrity will be considered through the HRA process.

7.4.22 Cumulative (and in the context of the HRA process, in-combination) effects will also be considered where relevant for all of the effects detailed in **Table 7.2** below.

7.5 Mitigation

During Operation

7.5.1 Mitigating any potential adverse effects on IOFs will be carefully considered when identifying mitigation measures to be included as part of the Proposed Development. Mitigation measures will be formulated based on the outcome of the ornithological assessment and will be the subject of consultation with statutory and non-statutory conservation stakeholders.

7.5.2 If it is considered that mitigation is necessary to reduce any adverse environmental effects on bird populations, mitigation will be proposed in the ornithological chapter to reduce the significance of these effects to an acceptable level. During the Proposed Development design process mitigation measures will seek to follow the recognised hierarchy of avoidance, reduction, enhancement, and compensation.

7.5.3 Any mitigation measures identified will be subject to a Species and Habitat Management Plan which will form part of the Proposed Development, to mitigate any potential significant effects of the Proposed Development on IOFs.

7.5.4 All ornithological mitigation will be incorporated into a Construction Environmental Management Plan (CEMP). This CEMP will outline all required mitigation and provide details on timelines for undertaking mitigation for each identified ornithological receptor. This CEMP will also outline timetable of actions and form part of the contract documents to ensure delivery of mitigation specified in the EIAR. In addition, the CEMP will incorporate the provision of an Ecological Clerk of Works (ECoW) to oversee the implementation of recommended mitigation.

7.6 Scope

7.6.1 **Table 7.2** below summarises the potential impacts proposed to be scoped in and out of the EIAR.

Table 7.2 - Receptors and Impacts Scoped In and Out

Receptor	Construction	Operation	Potential Impact
Designated Site			
Muirkirk and North Lowther Uplands SPA	✓	✓	Impact on qualifying species/ potential indirect effects on habitat
Muirkirk Uplands SSSI	✓	✓	Impact on qualifying species/ potential indirect effects on habitat
North Lowther Uplands SSSI	✓	✓	Impact on qualifying species.
Ornithological Feature			
Hen Harrier	✓	✓	Collision and disturbance/ displacement
Peregrine	✓	✓	Collision and disturbance/ displacement

Receptor	Construction	Operation	Potential Impact
Merlin	✓	✓	Collision and disturbance/ displacement
Short-eared owl	✓	✓	Disturbance/ displacement
Golden Plover	✓	✓	Collision and disturbance/ displacement
Breeding waders (common sandpiper, curlew, lapwing, oystercatcher, snipe)	✓	✓	Collision and disturbance/ displacement
Black grouse	x	x	Not considered to be lekking or breeding within the Proposed Development and survey buffer.
Breeding bird assemblage including crossbill	✓	✓	Disturbance/ displacement
Geese	x	x	Occasional presence and over 20 km from any goose SPA.
Other non-target species -Gulls/ Common Raptors/ Raven/ducks etc	x	x	Only present at the site in low numbers.

8. Noise and Vibration

8.1 Introduction

8.1.1 This section of the report focuses on the changes to the baseline and assessment methodology with regard to the potentially significant effects of noise as outlined in the 2022 Scoping Report.

8.1.2 The relevant legislation and guidance remain as noted in the 2022 Scoping Report, noting the policy changes within **Section 4**.

8.2 Study Area

8.2.1 The Study Area has been informed by preliminary modelling of the wind turbines of the Proposed Development. The 35 dBL_{A90} noise contour is shown in **Figure 8.1**, for operation in isolation. A selection of representative NSRs is shown, but the final list of NSRs will be agreed with the EHOs following a review of maps of the area, cumulative noise predictions and a site visit. The study area for the wind turbines aspect of the project (Study Area 1 – wind component) comprises the 35 dB contour, including a +3 dB correction to allow for potential corrections for concave topography in the northern part of the Proposed Development.

8.2.2 Wind turbines are likely to be the noisiest component of the Proposed Development, however, we note that noise from the solar and BESS, including associated road traffic movements, will also require assessment. A second study area (Study Area 2) has therefore been adopted for these other project components in the southern part of the Proposed Development (as shown in **Figure 8.1**).

8.3 Assessment Methodology

8.3.1 Noise from solar and energy storage facilities will be evaluated in accordance with BS4142. Background noise levels will be characterised using data collected during the baseline monitoring campaign, supplemented by additional attended measurements where appropriate. Where BS4142 is used, the assessment will consider that potentially significant adverse noise impacts may arise where the rating level exceeds the representative background level by a margin of greater than 5 dB.

8.3.2 Noise from wind turbines will be evaluated in accordance with ETSU-R-97 and the Institute of Acoustics' Good Practice Guide). Given the size and generating capacity of the Proposed Development, we will apply the upper (40 $dBL_{A90,10min}$) fixed minimum daytime ETSU noise limit and the 43 $dBL_{A90,10min}$ fixed minimum ETSU noise limit will be applied during the night-time period.

8.4 Noise Survey

8.4.1 A baseline noise survey was undertaken between 23 November 2022 and 13 December 2022. Noise monitoring was undertaken at three locations (refer to **Figure 8.1**) as agreed with SLC and EAC Environmental Health Officers:

- NMP1 – Bibblon Lodge (NS 65654, 28330);
- NMP2 – Blackside (NS 70115, 29901); and
- NMP3 – Priesthill (NS 71995, 31042).

8.4.2 As set out in the 2022 Scoping Report and as agreed with SLC and EAC Environmental Health Officers, baseline noise monitoring was not carried out at NSRs around Study Area 1 as the background noise levels at these NSRs is more affected by anthropogenic noise than the three locations above. The baseline can therefore be robustly characterised with reference to measured data collected.

8.4.3 Wind speed and rainfall were measured over the same period, and all measurements were appropriately correlated and data evaluated in accordance with the requirements of the appropriate guidance (ETSU-R-97 and the Institute of Acoustics' Good Practice Guide). Measured

data has been screened by wind direction to exclude the contribution of existing wind turbines. Noise limits for the wind turbine component of the project have been derived accordingly.

8.4.4 The measured baseline data collected will be suitable to derive noise limits for the other aspects of the project in accordance with BS5228 (construction activities) and BS4142 (solar, substation and energy storage facilities).

8.5 Scope

8.5.1 There is no change to the proposed assessment methodology and mitigation as outlined in the 2022 Scoping Report.

8.5.2 No NSRs have yet been scoped out of the assessment, however, the status of potential NSRs will be confirmed during site visits and through consultation with the EHOs. Where properties are determined to be derelict and uninhabitable, they may be scoped out of further assessment.

8.5.3 Should any blasting be required for borrow pits, it is unlikely that the charge parameters will be known at the time of the assessment. We therefore propose to scope out detailed assessment of potential vibration impacts, and instead commit to meeting appropriate vibration limits at NSRs should blasting be required. We anticipate that such a commitment could be agreed through an appropriate planning condition.

Table 8.1 - Aspects Scoped In and Out

Aspect	Construction	Operation	Rationale / Method
Noise from construction activities	✓	x	Construction phase noise limits will be derived with reference to baseline noise levels. Noise from construction activities will be predicted for representative worst-case construction scenarios and evaluated against proposed noise limits. Noise from construction can be limited by limiting out-of-hours working and implementation of best practice techniques and may be controlled by planning condition.
Noise from wind turbines	x	✓	Noise from wind turbines will be predicted and evaluated against derived noise limits, which will be specific to the Proposed Development, such that overall noise limits which apply to all cumulative development in the area, are preserved.
Noise from non-turbine fixed plant	✓	✓	Noise from non-turbine fixed plant will be predicted and evaluated against derived noise limits.
Noise from road traffic	✓	✓	Changes to road traffic flows arising due to the proposed development construction and operational phases will be evaluated against criteria provided in the Design Manual for Roads and Bridges.

9. Cultural Heritage

9.1 Introduction

9.1.1 This section of the report focuses on the changes to the baseline and assessment methodology with regard to the potentially significant effects on Cultural Heritage as outlined in the 2022 Scoping Report.

9.1.2 The relevant legislation and guidance remain as noted in the 2022 Scoping Report, noting the policy changes within **Section 4**.

9.2 Baseline Description

9.2.1 A desk-based assessment, drawing on existing archive records (South Lanarkshire Historic Environment Record (HER), curated by West of Scotland Archaeology Service (WoSAS)) and designation records maintained by Historic Environment Scotland (HES), and using historic maps and lidar imagery where available, augmented by a programme of field survey, has been carried out to identify sites and areas that have archaeological and historic environment potential. The locations of these sites are shown on **Figure 9.1**.

Inner Study Area (ISA)

Designated Heritage Assets

9.2.2 There is one scheduled monument, Dungavel Hill Cairn (SM2848) within the ISA, located within the northern development area.

Non-designated Heritage Assets

9.2.3 The Baseline Study has identified 33 heritage assets within the ISA. Twenty-two of these are recorded in the HER; seven were identified from examination of 1st (1860-4) and 2nd (1898-9) edition Ordnance Survey maps; four were identified through examination of lidar imagery.

9.2.4 Thirteen of the sites recorded in the HER are findspots of flint and other stone implements, variously likely of Mesolithic to early Bronze Age date. A notable concentration of these (12 sites) lies along the Powbrone Burn in Dungavel Forest. The HER also records two pollen analysis core locations in the same area. The stone tool findspots are strong indications of archaeological potential along the Powbrone Burn, and perhaps other watercourses in the vicinity.

9.2.5 One site recorded in the HER, within the southern development area, is for a probable burial cairn likely of Bronze Age date, and one for a burnt mound, also likely of Bronze Age date. One other is that tentatively thought to be a possible prehistoric house platform. Collectively, these attest to settlement in the Bronze Age within the ISA, albeit at a low density.

9.2.6 Other heritage assets identified within the ISA include farmsteads and field systems of medieval or post-medieval date along with sheepfolds and stock enclosures, rig and furrow cultivation plots, and field systems enclosed within banks, recorded during surveys by the Royal Commission on the Ancient and Historical Monuments of Scotland (RCAHMS) in the early 1990s and confirmed as surviving by this study. Collectively, these attest to settlement in the medieval to post-medieval period with the low ground close to the Greenock Water evidently favoured.

Outer Study Area (OSA)

9.2.7 Preliminary assessment of the HES designations database shows that, there are 12 Scheduled Monuments within 10 km of the Proposed Development site boundary. These include six probable Bronze Age funerary monuments, two Castles, a Chapel, and three industrial sites.

9.2.8 There are 146 Listed Buildings within 10 km of the Proposed Development site boundary (79 of Category B and 67 of Category C). There are no Category A Listed Buildings within 10 km of the

Proposed Development Site Boundary. Fifty of the Listed Buildings are located in built-up areas in Strathaven and have settings that are characterised by their townscape.

9.2.9 There are two Historic Battlefields (Battle of Drumclog and Battle of Loudon Hill) and four Conservation Areas (Strathaven, Lugar, Darvel Central and Morton Park) within 10 km of the Proposed Development site.

9.2.10 There is one Inventory Garden and Designed Landscapes (GDL) within 10 km of the Proposed Development site: Lanfine. The closest others are Loudon Castle, 13 km to the west and Dumfries House GDL (including Category A Listed Dumfries House) 13 km to the southwest.

9.2.11 New Lanark World Heritage Site (WHS) and Falls of Clyde GDL lies 17.5 km to the north-east of the Proposed Development site.

9.2.12 In addition to the designated heritage assets described above, there are 25 heritage assets, seven of which have multiple parts, recorded in the Council HER as non-statutory register (NSR) sites that lie within 5 km of the Proposed Development site. These recorded NSRs include a Bronze Age burial cairn, a standing stone, a possible burnt mound, and two probable Iron Age settlement sites. Other NSR sites include medieval or post-medieval farmsteads, a tower house, and mining related remains.

9.2.13 The locations of these designated heritage assets and NSR site are shown on **Figure 9.2**.

9.3 Survey and Assessment

Desk Bases Assessment

9.3.1 Further desk-based assessment will be completed (note: desk-based assessment has already been carried out for most of the Proposed Development site shown on **Figure 9.1**). The study will draw on up to date archive records and other available sources, to identify sites and areas that have archaeological and historic environment potential and to inform the field survey.

Field Surveys

9.3.2 A walk-over reconnaissance field survey within the ISA will be completed (note: survey has already been carried out within the solar and BESS development area). Field survey in areas covered by commercial forestry will be limited to targeting the locations of heritage assets identified through desk-based assessment, as far as access is possible, in order to establish their continuing presence or absence and to record their baseline condition where remains do survive.

9.3.3 Site visits to heritage assets in the OSA will be undertaken to assess, with the aid of wireline visualisations, the predicted impact of the Proposed Development on their settings. Site visits will include any assets specifically identified by consultees as requiring assessment and those identified through analysis of the Proposed Development ZTVs (turbines and solar/substation/BESS components) where it is considered, on the basis of professional judgement, that the impact on their settings could be significant.

Proposed Cultural Heritage Visualisation Viewpoints

9.3.4 **Table 9.1** below identifies those designated heritage assets for which, based on the Scoping turbine blade tip height ZTV, it is proposed that visualisations may be included in support of the assessment in the EIAR. In addition to these, reference will be made to LVIA viewpoints where these are helpful to the assessment (Cairn Table, as an example).

Table 9.1 Cultural Heritage Visualisations

VP Ref	Site Name & Ref No	Visualisation type (suggested) to be agreed with consultees (with reasoning)
CH 1	Dungavel Hill, cairn (SM 2848)	Photomontage (including cumulative wirelines) from location of cairn Hill top burial cairn with intervisibility with Cairn Table cairns (LVIA VP 4) and other hilltop cairns nearby (CH 2-CH 5).
CH 2	Harting Rig, cairn (HER 9121)	Wireline (including cumulative wirelines) from location of cairn. Hill top burial cairn with intervisibility with Dungavel Hill cairn (CH 1) and other hilltop cairns nearby (CH 3-CH 5).
CH 3	Wetherhill, cairn (HER 9685)	Wireline (including cumulative wirelines) from location of cairn. Hill top burial cairn with intervisibility with Dungavel Hill cairn (CH 1) and other hilltop cairns nearby (CH 2, CH 4 & CH 5).
CH 4	Glen Garr, cairn (SM 2469)	Wireline (including cumulative wirelines) from location of cairn. Hill top burial cairn with intervisibility with Dungavel Hill cairn (CH 1) and other hilltop cairns nearby (CH 2, CH 3 & CH 5).
CH 5	Blacksidend, cairn (SM 2924)	Wireline (including cumulative wirelines) from location of cairn. Hill top burial cairn with intervisibility with Dungavel Hill cairn (CH 1) and other hilltop cairns nearby (CH 2-CH 4).
CH 6	Cairn Kinney (SM 4275)	Wireline (including cumulative wirelines) from location of cairn. Hill top burial cairn with intervisibility with Cairn Table, two cairns (LVIA VP 4) (possibly with Proposed Development in background).
CH 7	Chapelhouse, chapel and farmstead (SM 5405)	Wireline (including cumulative wirelines) from location of chapel. Chapel and probable ecclesiastical residential site in secluded setting
CH 8	Glenbuck Ironworks, 470m NW of Glenbuck Home Farm (SM 2931)	Photomontage (including cumulative wirelines) from south end of scheduled area looking NW across mining remains and village. Promoted mining heritage site and birthplace of Bill Shankly.
CH 9	Muirkirk, remains of tar works, mines and structures E of Garpel Water (SM 6640)	Photomontage (including cumulative wirelines) from within mining remains (tramway through area of bell pits) - looking north towards Muirkirk village.
CH 10	New Lanark WHS	Photowireline (baseline photograph plus wireline) - (including cumulative wirelines) from Braxfield Road looking across valley.
CH 11	Dumfries House (LB 14413) & GDL	Photowireline (baseline photograph plus wireline) - (including cumulative wirelines) from viewpoint southwest of House (if achievable), with House in foreground looking towards site.

9.3.5 Post-scoping follow-up consultation will be made with consultees, once a finalised design has been arrived at, to confirm requirements for visualisations for inclusion in the EIA.

9.4 Consultation

9.4.1 Following the submission of the 2022 Scoping Report the Applicant team met with officers at HES (12 June 2023) to discuss the 2022 Scoping layout and the subsequent amendments presented in this Report. A number of suggested amendments to the wind turbine layout were raised at the meeting which have been taken into consideration in the latest layout design for the Proposed Development. Revised wirelines from Dungavel Cairn showing the amendments will be shared with HES officers.

9.4.2 Consultation with HES is ongoing and the Applicant will continue to work with HES throughout the design process.

9.5 Scope

Scoped In

9.5.1 It is proposed that the assessment will include consideration of potential impacts of the Proposed Development on the settings of:

- Scheduled Monuments, Category A and B Listed Buildings, Conservation Areas, Inventory Gardens and Designed Landscapes, Inventory Historic Battlefields where present within 10 km of the outermost turbines and within 5 km of the proposed solar and BESS components.
- NSR sites, Category C Listed buildings, and Non-Inventory Designed Landscapes (NIDLs) within 5 km of the outermost turbines and solar and BESS components.

9.5.2 Consideration will be given to designated heritage assets beyond 10 km where long-distance views and intervisibility are considered to be an important aspect of their settings. Assets beyond 10 km currently identified as justifying inclusion are:

- New Lanark WHS, Conservation Area and Inventory Garden and Designed Landscape.
- Dumfries House (LB 14413) and it associated Inventory Garden and Designed Landscape.

9.5.3 Consideration will also be given to designated heritage assets where there is no predicted visibility from the asset but where views of or across the asset are important factors contributing to its cultural significance. In such cases, consideration will be given to whether the Proposed Development could appear in the background to those views.

9.5.4 Those assets that are most likely to be affected are those where wide-ranging views, or prominence in the landscape, are important aspects of their settings. Initial appraisal has identified Dungavel Hill, cairn (SM 2848) as having a setting on a hilltop where such characteristics are important aspects of its setting. In the wider landscape, Cairn Table, two cairns (SM 4631) also occupies a prominent location on a notable hilltop and has wide ranging views as an important aspect of its setting. Intervisibility between the Cairn Table and Dungavel Hill cairns is also an important aspect of their shared setting.

9.5.5 The turbine blade tip and hub height ZTVs for the Proposed Development will be used to identify those heritage assets from which there would be theoretical visibility of one or more of the proposed turbines and to assess the degree of potential visibility.

Scoped Out

9.5.6 It is proposed that the assessment will scope out consideration of potential impacts of the Proposed Development in the following circumstances:

- Impacts on the settings of listed buildings that lie within urban settings can be scoped out of the assessment on the basis that their settings are constrained to, and defined by, their locations within the built environment and their relationships with surrounding buildings and the local townscape.
- Impacts on the settings of most designated heritage assets beyond 10 km of the Proposed Development can be scoped out, as most assets beyond that distance will be too far distant to have their settings significantly adversely affected by the Proposed Development. New Lanark World Heritage site, 17.5 km north-east of the Proposed Development, and Category A Listed Dumfries House (LB 14413) and its associated Inventory Garden and Designed Landscape, 17.5 km to the southwest, will be considered during the design stage and addressed in the assessment if required. The finalised turbine tip height ZTV will be appraised to identify other assets (Category A Listed Buildings and GDLs) where designed views or vistas may include the Proposed Development.

- Assessment of impacts on the settings of Category C Listed Buildings and non-inventory designed landscapes beyond 5 km can be scoped out as it is considered that, for these locally important designations, beyond that distance their settings will not be significantly adversely affected.
- Direct impacts on heritage assets during the operational and decommissioning phases can be scoped out as any maintenance, repair or replacement works, and decommissioning work, would utilise the as-built infrastructure.
- Impacts on the settings of heritage assets during the construction and decommissioning phases can be scoped out as any such effects would be short-term and temporary. The operational phase represents the worst-case scenario and is sufficient for assessing setting impacts overall.

9.5.7 **Table 9.2** below summarises the potential impacts proposed to be scoped in (✓) and out (x) of the EIA Report.

Table 9.2 – Receptors or Impacts Scoped In or Out of assessment

Potential Impact	Construction	Operation	Decommissioning	Comment
Direct impact on heritage assets	✓	**x**	**x**	Assessment of potential direct impacts will be limited to sites within the ISA.
Impacts on the settings of heritage assets	**x**	✓	**x**	Impacts will be considered for designated heritage assets and NSR sites as outlined above (**Section 9.5**).

10. Hydrology, Hydrogeology and Geology

10.1 Introduction

10.1.1 This section of the report focuses on the changes to the potential for significant effects on surface water, groundwater, the potential risk of flooding, and the drainage requirements, and potential effects on geological receptors as outlined in the 2022 Scoping Report.

10.1.2 The relevant legislation and guidance remain as noted in the 2022 Scoping Report, noting the policy changes within **Section 4**.

10.2 Baseline Description

Land Use and Topography

10.2.1 The northern development area (c.760 ha) comprises principally of commercial coniferous plantation and existing forestry tracks and includes of a series of summits; Dungavel Hill (458 m AOD) in the north-west, Auchengilloch (462 m AOD) in the north-east and Brown Hill (313 m AOD) in the south.

10.2.2 The southern development area (205 ha) is comprised of grazed fields and small areas of open moorlands. The topography of the southern development area is flat in the west with a moderately sloping topography in the east.

Surface Hydrology

10.2.3 There are a number of watercourses that traverse the northern development area. The west of the site is drained by Bught Burn and Patrick Burn. The Powbrone Burn along with several of its unnamed tributaries drain the forested area to the north-west of the site. Hall's Burn is present immediately at the northern boundary of the site. All surface water features on the site drain into the Glengavel Water and Glengavel Reservoir located to the west of the site (**Figure 10.1**).

10.2.4 The southern development area is drained by Netherwood Burn, Back Burn, Harwood Burn, and Lamon Burn that discharge into the Greenock Water located to the immediate south, flowing westerly along the southern boundary of the site.

Geology and Peat

10.2.5 British Geological Survey (BGS) mapping indicates that the superficial geology within the northern development area is anticipated to be dominated by widespread peat deposits in upland gentler sloping areas, with glacial till and fluvioglacial deposits present across hillsides, with alluvium associated with local watercourses. The southern development area is predominantly underlain by glacial till with isolated areas of glaciofluvial sand and gravel deposits in the west and east of the site respectively with alluvium deposits associated with local watercourses (**Figure 10.2**).

10.2.6 Phase 1 and Phase 2 peat depth survey has been carried out across both development areas (**Figure 10.3**) and an area identified for habitat enhancement to the south-west of the southern development area (see **Figure 6.4**). The east of the northern development area has peat depths predominantly under 1.0 m, the west of the site has peat depths ranging from 0.5 m – 3.0 m. Peat is predominantly absent from the southern development area with small areas ranging between 0.5 m - 1.0 m in depth. Surveys within the area marked for potential habitat enhancement to the south-west of the southern development area identified a larger area of deep peat (<5 m).

10.2.7 BGS mapping indicates that the bedrock geology at the Proposed Development comprises a heavily faulted sequence of predominately Devonian to Silurian age sedimentary rocks (**Figure 10.4a** and **10.4b**). The northern development area is largely underlain by bedrock of the Dungavel Group, including the Plewland Sandstone Formation with the Middlefield Conglomerate Formation, with Swanshaw Sandstone Formation to the north-west, and the Logan Formation (sandstone, siltstone

and mudstone) to the east. These lithologies have been intruded by microgabbro dykes of the Mull Dyke Swarm. The southern development area is also heavily faulted, with wacke of the Ponesk Burn Formation and sandstone of the Kinnesswood Formation to the south and west. The north-east is underlain by layers of sandstone, mudstone and siltstone intruded by igneous rocks of various ages. Sandstones and siltstones of the Kinnesswood Formation and Ballagan Formation with carbonate nodular and beds of ferroan dolomite are present to the west.

10.2.8 While coal bearing bedrocks are present in the surrounding area, and correspond with a Development High Risk Area, as characterised by the Coal Authority, these are not present underlying the Proposed Development site (**Figure 10.5**). The former Spireslack and Ponesk Opencast Coal Sites and the former Tardoes Opencast Coal Site are located to the southeast, with the former mining village of Muirkirk lying c.1.4 km south of the southern development area.

10.2.9 A Review of the Carbon and Peatland 2016 mapping published by SNH (now NatureScot) indicates that there are areas of Class 1 peatland present around Dungavel Hill and to the east near Auchengilloch. The majority of Dungavel forest is Class 5 peatlands. Mapping indicates that the southern development area has primarily mineral soil present, with some Class 3 peatland present in the east (**Figure 10.3**).

10.2.10 Class 1 and 2 peatland is considered nationally important priority peatland habitat. Class 3 to 5 is not considered priority peatland, though Class 3 peatland is associated with carbon-rich soils, with some potential areas of deep peat.

Groundwater

10.2.11 The bedrock is classified as a low to medium productivity aquifer, with flow virtually through fractures and discontinuities, with limited groundwater in the near surface weathered zone and secondary fractures, increasing to low yields within the Carboniferous units, which may have been disturbed by mining.

10.2.12 The site is situated primarily within the North Glengavel Groundwater body, classified by SEPA as having an overall status of 'Good'.

10.2.13 Consultation with South Lanarkshire and East Ayrshire Council in 2022 has identified four residential properties located within a 2 km radius of the northern development area, and 12 residential properties located within a 2 km radius of the southern development area which have the potential to be served by private water supplies (PWS). This will be determined during the EIA process, to establish whether there are PWS in the study area and adjacent areas which require assessment.

10.2.14 SEPA flood maps indicate high potential for fluvial flooding within the Bught Burn, Powbrone Burn, and Greenock Water. Pluvial or surface water flooding is generally limited to the Glengavel Reservoir. There is no risk of coastal flooding on this site.

10.3 Proposed Scope of Survey and Assessment

10.3.1 The proposed scope of surveys and assessment remains as outlined in the 2022 Scoping Report.

10.3.2 As mentioned in **Section 10.2.7** Phase 1 peat probing has been carried out for the Proposed Development boundary, excluding a small area in Dungavel Forest where there is active forestry works (**Figure 10.3**). Phase 2 peat probing has also been carried out in the Dungavel Forest and further targeted peat probing will be carried out as the Proposed Development design is further refined. This will be agreed through consultation with SEPA and NatureScot.

10.4 Consultation

10.4.1 Following the submission of the 2022 Scoping Report the Applicant team met with officers at SEPA (25 April 2023) to discuss the 2022 Scoping layout and the comments received in their Scoping Opinion. The discussions held looked at Phase 1 and Phase 2 of the development as a whole and covered: infrastructure within the Peatland ACTION Restoration Area, habitat mapping, site

condition assessments and potential for restoration as well as initial suggestions for changes to the 2022 Scoping layout to reduce potential impacts of areas identified as being over deep peat (1m +).

10.4.2 Three of the suggested amendments to the wind turbine layout were located within the northern development area relating to turbines located in the east of Dungavel Forest. Subsequent design iterations have looked to site these turbines in areas of shallower peat which included the removal of three turbines within the northern development area to accommodate the changes.

10.4.3 Consultation with SEPA is ongoing and the Applicant will continue to work with SEPA throughout the design process and in the identification of suitable areas for peatland restoration or enhancement.

10.5 Scope

Table 10.1 – Receptors or Impacts Scoped In or Out of Assessment

Potential Impact	Construction	Operation	Decommissioning	Comment
Designated Sites	✓	✓	✓	The southern development area is located immediately downslope of the Muirkirk Uplands SSSI and Muirkirk and North Lowther Uplands SPA, while northern development area it is hydrologically disconnected by topography. Any potential impacts on the designated site recptors will be limited during the construction, operation and decomissioning phases.
Surface Water	✓	✓	✓	Glengavel Reservoir and Greenock Water likely to receive site surface drainage. It is assumed that there is little potential for significant effects from operational drainage, taking account of embedded mitigation (appropriate drainage design, appropriate design and construction of water crossings).
Flood Risk	✓	✓	x	Flood mapping indicates that localised flooding of the Bught Burn, Powbrone Burn, and Greenock Water is likely. Potential flood risk can be suitably mitigated by including a 50 m buffer from watercourses within the site layout design. Crossings of minor watercourses/ field drains, if required, will be designed to appropriately convey flows. Proposed watercourse crossings would be addressed within the schedule of watercourse crossings technical appendix.
PWS	✓	✓	✓	Potential for PWS to be present, therefore provisionally scoped in. May be scoped out in consultation with SEPA and EAC/SLC if studies identify no PWS within the site catchment area.
GWDTE	✓	✓	✓	Low to moderately permeable aquifers, potential for GWDTE to be present, therefore provisionally scoped in. May be scoped out in consultation with SEPA and if surveys identify no GWDTE within relevant buffer distances of proposed infrastructure.
Peat	✓	x	x	Geological mapping and peat surveys indicate the presence of peat at the site, the extent, depth and nature of which will be established during the EIA process. There is potential for at least some excavation of peat to be required, and potential for the Proposed Development to impact on peat via localised compaction and dewatering.
Receptors Sensitive to peat slide risk	✓	x	x	Data from peat surveys indicate that peat deposits are likely to be present on site.

Potential Impact	Construction	Operation	Decommissioning	Comment
(watercourse/water bodies, properties, infrastructure)				
Coal Mining	**x**	**x**	**x**	While the Coal Authority has identified areas as Development High Risk within the surrounding area, there is low likelihood of historic coal mining activity at the site.
Contaminated Land	**x**	**x**	**x**	Low likelihood of any current or historical contaminative land uses at the site; Proposed Development not a sensitive receptor to contamination.

11. Traffic and Transport

11.1 Introduction

11.1.1 This section of the report focuses on the changes to the baseline and assessment methodology with regard to the potentially significant effects of traffic and transport arising from construction and operation of the Proposed Development as outlined in the 2022 Scoping Report.

11.1.2 The relevant legislation and guidance remain as noted in the 2022 Scoping Report, noting the policy changes within **Section 4**.

11.2 Baseline Description

11.2.1 Access by abnormal loads to the Proposed Development site is currently proposed to be taken from Junction 11 of the M74 motorway, through the existing Hagshaw Cluster to join the A70 west of Glespin (exact route tbc), then following the A70 to Muirkirk, before turning north onto the B743 (as shown on **Figure 3.5**). For the longest components, the wind turbine blades, the journey from King George V Dock in Glasgow to the A70 via the above route will be made on a standard blade carrying trailer. It is currently proposed that blades would then be transferred to a blade lifter via a temporary laydown area on land to the north of the A70. The wind turbine blades would then make the remainder of the journey to site via the above route on the blade lifter to ensure all manoeuvres along that stretch of the route are viable. All wind turbine abnormal loads will enter the site at Dungavel Forest only (Point B on **Figure 3.5)**.

11.2.2 Other HGV deliveries and lighter vehicles will also use the A70 to access the B743 from the south, while others may use the A71 to access the B743 from the north, dependent upon the origin of their journey. These vehicles will then access the Proposed Development from access points A, B and C on the B743 depending on which access is most conveniently located for the part of Proposed Development they require to access (see **Figure 3.1**). An amended junction will be created at Access Point C to improve visibility splays entering and exiting the southern development area (see **Figures 3.1** and **3.4**).

11.2.3 The Applicant is in the process of identifying suitable borrow pit search areas within the site and intends on including such areas within the application for consent. Should suitable borrow pit search areas not be identified within the site, the Applicant will need to make provision for the import of aggregate from a suitable off-site source(s) for construction purposes. It is however currently envisaged that the vast majority of stone required for construction will be won on site.

11.2.4 It is proposed that post-construction, operational accesses off the B743 at the existing entrances to Dungavel Forest (Points A and B on **Figure 3.5)** and the amended entrance to Linburn Farm (Point C on to **Figure 3.5**) will be retained to service the Proposed Development. Any occasional abnormal load requirements during the operational period (for activities such as blade swaps, if required) would continue to use the M74(J11)/A70/B743 access route which would also be used for decommissioning.

11.2.5 The baseline will be informed by site visits and collection of data. The transport network around the Proposed Development will be visited and any potentially sensitive receptors will be identified. Data on traffic flows and accidents has been obtained for the roads likely to experience an increase in traffic arising from the Proposed Development in surveys undertaken in June 2023. Week-long Automatic Traffic Counter (ATC) surveys were undertaken at the locations shown in **Table 11.1** below. These would count all vehicles by direction and classification and record vehicle speed.

Table 11.1 ATC Survey Locations

Coordinate (BNG)	Description of Location
269888, 630470	B743, North of Muirkirk
269628, 627762	B743 Muirkirk
269440, 627275	A70, Muirkirk

11.2.6 A 'Low' traffic growth factor from the National Road Traffic Forecasts (NRTF) dataset will be applied to factor traffic flows observed on non-trunk roads to the year of construction and opening.

11.2.7 As noted above, post-construction, operational accesses will be retained off the B743 at the same locations as those proposed for use during construction. Any occasional abnormal load requirements during the operational period (for activities such as blade swaps) would continue to use the route from the M74, A70 and B743 which would also be used for decommissioning.

11.3 Scope

Table 11.2 – Receptors or Impacts Scoped In or Out of Assessment

Potential Impact	Construction	Operation	Decommissioning
Slip roads to and from the M74 at Junction 11	✓	✓	x
Section of the B7078	✓	✓	x
A70 between Carmacoup to Muirkirk	✓	✓	x
B743 between Muirkirk and Dungavel Forest	✓	✓	x

12. Aviation and Radar

12.1 Introduction

12.1.1 This section of the report focuses on the changes to the baseline and assessment methodology with regard to the potentially significant effects on aviation as outlined in the 2022 Scoping Report.

12.2 Relevant Guidance

12.2.1 The updated *Scottish Onshore Wind Policy Statement* (2022) recognises, in *Chapter 6*, recent progress stating that bespoke solutions which alleviated specific, individual objections have been deployed successfully over the last decade or more, releasing significant volumes of renewable generation. However, the pace of deployment necessitated by the climate emergency means we must find a way to alleviate these impacts in an effective, efficient and timely manner. It is also important that solutions are cognisant of the cost of deploying renewable energy, particularly given the need to focus on both security of supply and low-cost generation, given the current international and economic situation.

12.2.2 Beyond the above statement of need, the document sets out the structure and aims of Industry and Government groups set up to address the issues of radar impacts and aviation lighting; specifically, the *Onshore Wind Aviation Radar Delivery 2030* group and the *Aviation Lighting Working Group*.

12.2.3 The *Aviation Lighting Working Group* has developed draft guidance focussed on delivering consistent methods, practices and recommendations to aid in assessing aviation obstacle lighting impacts. The draft guidance is out to consultation with relevant stakeholders, with a final version expected to be published in due course.

12.3 Potential Impacts

12.3.1 The Proposed Development is predicted to have impacts on the airport primary radars at Glasgow and Prestwick, requiring mitigation to allow the normal operation of the airports.

12.3.2 The Proposed Development is also expected to have impacts on the NATS En-route radars at Lowther Hill and Cumbernauld, requiring mitigation to allow normal operation.

12.3.3 It is proposed to scope out assessment of effects during the construction and decommissioning of the Proposed Development during which the turbine blades will not be turning, preventing radar impacts.

12.3.4 As new obstacles in the environment, there is always the possibility of infringements of airport Instrument Flight Procedure safeguarding areas, in this case for Glasgow and Prestwick. It will be necessary to commission a CAA approved procedure design organisation to check for any such infringements. In the case of infringements, mitigation would be in the form of amendments to the affected procedures, typically only changing the minimum altitude that aircraft can fly, rather than their normal routing into and out of the airport.

12.4 Potential Mitigation

12.4.1 As described above, amendments to Instrument Flight Procedures may be required as well as mitigation measures outline in 2022 Scoping Report.

12.5 Scope

Table 11.2 – Receptors or Impacts Scoped In or Out of Assessment

Potential Impact	Construction	Operation	Decommissioning
Primary radars at Glasgow and Prestwick	x	✓	x
NATS En-route radars at Lowther Hill and Cumbernauld	x	✓	x
Instrument Flight Procedure safeguarding areas for Glasgow and Preswick	x	✓	x

13. Forestry

13.1 Introduction

13.1.1 This section of the report focuses on the changes to the baseline and assessment methodology with regard to the potentially significant effects on forestry as outlined in the 2022 Scoping Report.

13.1.2 The relevant legislation and guidance remain as noted in the 2022 Scoping Report, noting the policy changes within **Section 4**.

13.2 Baseline Description

13.2.1 The northern development area includes 760 ha of Dungavel Forest, with 26 turbines proposed to be keyholed into the forest. This area is characterised by compartments of commercially productive Sitka spruce with average and above average growth rates in central Dungavel with crop quality dropping off to the south and east, where growth rates are average to below average. Eastern areas, adjacent to the Muirkirk and North Lowther SSSI/SPA contain areas where tree growth is limited due to a combination of soil, hydrology, and climatic conditions.

13.2.2 Parts of the wider Dungavel Forest have been harvested for the development of the adjacent operational Dungavel Hill Windfarm, with areas outwith the wind farm managed as commercial forest.

13.2.3 Dungavel forest is held in a single ownership with areas outwith existing wind farm development managed as commercial forest. The forest is in the process of producing a Long-Term Forest Plan setting out harvesting and replanting proposals, with the focus on commercial timber production and reflecting modern forestry practices through the introduction of greater areas of designed open ground, with more diversity of conifer and native woodland species.

13.3 Scope

13.3.1 The forestry assessment will involve an iterative design process in consultation with Scottish Forestry and the landowner. This process will require the production of specific forestry proposals detailing areas to be harvested, timber production and replanting plans associated with the Proposed Development. These wind farm forestry plans will then be compared to any existing, approved Forest Plans as a benchmark against which the impacts of the Proposed Development can be quantitatively assessed, and the area of woodland removal and environmental enhancement quantified. In the absence of an approved plan, we will utilise a draft plan should this be available at the time.

Table 11.2 – Receptors or Impacts Scoped In or Out of Assessment

Potential Impact	Construction	Operation	Decommissioning
Forestry plans and net forestry areas	✓	✓	x

14. Shadow Flicker

14.1 Introduction

14.1.1 This section of the report focuses on the changes to the baseline and assessment methodology with regard to the potentially significant effects of shadow flicker as outlined in the 2022 Scoping Report.

14.1.2 The relevant legislation and guidance remain as noted in the 2022 Scoping Report, noting the policy changes within **Section 4**.

14.2 Study Area and Assessment Methodology

14.2.1 Based on an indicative candidate turbine model (maximum tip height 230 m), which has a rotor diameter of maximum 163 m, the minimum distance from the turbine at which residential property must lie in order to be outwith consideration for shadow flicker effects, is 1,630 m (10 times the rotor diameter). Potential for shadow flicker impacts will be assessed at all residential and or regularly occupied receptors within this shadow flicker study area.

14.2.2 Residential receptors are principally located along the Muirkirk to Strathaven road (B743). Based on a review of OS Address Base data, 28 properties have been identified within 1,630 m of the proposed turbine locations, 21 of which are located at or close to Dungavel House, north-west of the site, within existing forestry plantation.

14.2.3 There are a number of operational wind turbines and those 'in planning' surrounding the Proposed Development which will be included in the cumulative assessment.

14.2.4 Assessment methodology remains as outlined in the 2022 Scoping Report.

14.3 Scope

Potential Impact	Construction	Operation	Decommissioning
Shadow flicker impact on receptors within 10 rotor diamaters of the proposed turbine locations	x	✓	x

15. Other Technical Assessments

15.1.1 There are no changes with regard to the baseline, assessment and potential effects associated with the following proposed technical disciplines as outlined within in the 2022 Scoping Report:

- Socio Economics, Recreation and Tourism
- Glint and Glare
- Carbon Balance

15.1.2 There are also no changes to the potential for significant effects as a result of the amendments to the Proposed Development as outlined within the 2022 Scoping Report for:

- Air Quality
- Major Accidents and Disasters
- Telecommunication - It is proposed to scope out telecommunications and television following re-consultation with operators.

16. Summary

16.1.1 This EIA Scoping Update outlines the changes to the proposed technical and environmental assessment outlined in the 2022 Scoping Report and that will be included within the EIA Report for the Proposed Development.

16.1.2 Should any further information or clarification be required in order that an updated EIA Scoping Opinion can be provided we would be happy to provide further information and/or discuss any further requirements.

Appendices

Appendix 1– Scoping Consultee List

Table A1: List of consultees and interested stakeholders consulted as part of the Scoping process.

Organisation	Organisation
Association of Salmon Fishery Boards	Mountaineering Council of Scotland
BAA (Glasgow Airport)	Muirkirk Community Association
BAA Edinburgh Airport	Muirkirk Community Council
British Horse Society	Muirkirk Enterprise Group
BT	NATS Safeguarding
Civil Aviation Authority - Airspace	NatureScot
The Coal Authority	RSPB Scotland
Coalburn Community Council	Sanford Upper Avondale Community Council
The Crown Estate	Scottish Forestry
Defence Infrastructure Organisation	Scottish Government - Hydrogen Policy
District Salmon Fisheries Board	Scottish Government - Natural Resources Division
Douglas Community Council	Scottsh Raptor Study Group (South Strathclyde)
East Ayrshire Council	Scottish Water
Fisheries Management Scotland	ScotWays
Galloway and Southern Ayrshire Biosphere	Scottish Wildlife Trust
Glasgow Prestwick Airport	SEPA
Health and Safety Executive	South Lanarkshire Council
Historic Environment Scotland	Transport Scotland
Joint Radio Company	Visit Scotland
Lesmahagow Community Council	

Appendix 2 – Turbine Coordinates

Table B1: Scoping Layout Turbine Coordinates (26) – Maximum tip height is noted as up to 230 m and rotor diameter up to 163 m.

Turbine No.	X Coordinate	Y Coordinate	Tip Height (m)	Rotor Diameter (m)
01	266560	635973	230	163
02	267021	635562	230	163
03	266666	635685	230	163
04	266914	635104	230	163
05	267094	634729	230	163
06	267313	634386	230	163
07	267811	634805	230	163
08	268083	635279	230	163
09	268223	634795	230	163
10	267695	634272	230	163
11	267848	633917	230	163
12	268369	634301	230	163
13	268595	633863	230	163
14	269042	633900	230	163
15	268896	634595	230	163
16	269100	634371	230	163
17	269536	634006	230	163
18	270005	633960	230	163
19	270306	634307	230	163
20	269957	634598	230	163
21	269668	634918	230	163
22	270005	635186	230	163
23	269791	635657	230	163
24	270354	635359	230	163
25	270626	635071	230	163
26	271042	634990	230	163